

## **I. SUMMARY AND PROJECT DESCRIPTION**

### **I.A INTRODUCTION**

Plymouth Energy, L.L.C. (Plymouth Energy) proposes to construct and operate the Plymouth Generating Facility (PGF), which would be a 307-megawatt (MW) natural gas-fired, combined cycle power generation facility on a 44.5-acre site 2 miles west of the rural community of Plymouth in southern Benton County, Washington. Plymouth Energy has proposed that the PGF would be interconnected to the Bonneville Power Administration's (BPA's) proposed McNary-John Day 500-kilovolt (kV) transmission line at a point approximately 4.7 miles west of BPA's McNary Substation. This tie-in to the McNary-John Day line would be approximately 0.6 mile to the north of the project site.<sup>1</sup>

Natural gas would be supplied to the project by an 800-foot pipeline lateral from the Williams Northwest Gas Pipeline Company (Williams Co.) Plymouth Compressor Station, which is located adjacent to the plant site. Water for project use would be supplied from a groundwater well whose perfected rights have been transferred to the project. A small additional quantity of water to meet plant peak needs would be obtained by lease from the neighboring farm operation. Wastewater resulting from project operations would be supplied to the neighboring farm for blending with farm-supplied water, and then used for crop irrigation. Electricity generated by the PGF would be delivered to the BPA electric grid via a new transmission interconnection for transmission of energy to regional purchasers of electricity.

### **I.B PURPOSE AND NEED FOR THE PROPOSED ACTION**

#### **I.B.1 NEED FOR ACTION**

The West Coast is still recovering from energy market conditions in 2000 through 2002, during which there was a shortfall in electric energy supply and a volatile wholesale long-term power market in which prices reached record highs. Recent national and regional forecasts project increasing consumption of electrical energy to continue into the foreseeable future, requiring development of new generation resources to satisfy the increasing demand. Although frequently changing market conditions and forces inherently result in a certain amount of uncertainty in energy load and resource projection, longer-term projections fairly consistently forecast load growth and a need for resource development to serve this growth. For example, BPA's energy projections in the latest *Pacific Northwest Loads and Resources Study* ("White Book") forecast that the region faces a firm energy deficit of approximately 7,125 average megawatts (aMW) by 2011 if no new resources are developed (BPA 2002).

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<sup>1</sup> This interconnection will be referred to in the EIS as the proposed transmission interconnection and evaluated as part of the proposed project. Alternatives to this method of interconnection are also discussed in the DEIS and FEIS.

In addition, the Western Electricity Coordinating Council<sup>2</sup> (WECC) predicts a 2.5 percent per year increase in peak demand for the Northwest Power Pool (the states of Washington, Oregon, Idaho and Utah; the Canadian provinces of British Columbia and Alberta; and portions of Montana, Wyoming, Nevada, and California) between 2001 and 2011 (WECC 2002). The WECC also notes that hydro generation capability in the region has been reduced in recent years by factors such as the hydro spill policies of the 2000 Biological Opinion that are designed to help migration of anadromous fish. According to the WECC, it is critical that an average of about 4,000 MW of planned generation additions enter service each year to maintain minimum reserve requirements for generation resources (WECC 2002).

Numerous generation interconnection study requests from proponents of non-hydro generation, including the PGF, were received by BPA in 2001 and 2002, when power prices reached all-time highs. Although these requests represent a substantial amount of generation capacity, many of these requests are currently inactive as proposed. Many new generation plants have been cancelled or put on hold due to current market conditions and the slowing economy. However, long-term projections for the region are for continued growth and increasing demand, and the adequacy of generation supply in the Northwest over the next 10 years directly depends on how many of these or other proposed facilities are built (WECC 2002).

For BPA, there is a need to respond to Plymouth Energy's request for interconnection and transmission services for the PGF. Generation resources typically require interconnection with a high-voltage electrical transmission system for delivery to purchasing retail utilities. The BPA owns and operates the Federal Columbia Regional Transmission System (FCRTS), comprising more than three-fourths of the high-voltage transmission grid in the Pacific Northwest and including extra-regional transmission facilities. BPA operates the FCRTS, in part, to integrate and transmit electric power from federal and non-federal generating units. Interconnection with the FCRTS is essential to deliver power from many generation facilities to loads both within and outside the Pacific Northwest.

In summary, electrical consumers in the Pacific Northwest and Western states need increased power production to serve increasing demand, and high-voltage transmission services to deliver that power. The purpose of the PGF project is to help meet this future need for energy resources. In addition, BPA needs to respond to the request for interconnection and transmission services for the PGF project.

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<sup>2</sup> In 2002, the Western Systems Coordinating Council merged with the Western Regional Transmission Association and the Southwest Regional Transmission Association to form the Western Electricity Coordinating Council (WECC). WECC provides coordination essential in operating and planning a reliable and adequate electric power system for the western part of the continental United States, Canada, and Mexico. The WECC service area encompasses approximately 1.8 million square miles, more than one-half of the contiguous area of the United States. WECC is the largest, geographically, of the ten regional councils of the North American Electric Reliability Council.

## **I.B.2 PURPOSE OF THE PROPOSED ACTION**

Because Plymouth Energy has requested to integrate power from its proposed PGF into the FCRTS, BPA must decide whether and how to grant that request. BPA intends to base its decision on the following objectives or purposes:

- The provision of an adequate, economical, efficient and reliable power supply to the Pacific Northwest, and the electrical stability and reliability of FCRTS
- Consistency with BPA environmental and social responsibilities
- Cost and administrative efficiency

## **I.C DECISIONS TO BE MADE**

To proceed with development of the PGF, Plymouth Energy must obtain the following:

- State and local permits and approvals to construct and operate the PGF
- Permission from the BPA to interconnect with BPA's regional electrical transmission grid and to transport energy through the grid

Environmental review of the proposed project is necessary at both state and federal levels and is accomplished by preparation of an Environmental Impact Statement (EIS). This EIS has been prepared in compliance with both state and federal environmental review requirements, as described in Sections 1.3.1 and 1.3.2 below.

### **I.C.1 WASHINGTON STATE ENVIRONMENTAL POLICY ACT REVIEW**

Construction and operation of the PGF must be approved under Washington state and local authority (Benton County) and requires environmental review under Washington's State Environmental Policy Act (SEPA). This review is required for issuance of a Conditional Use Permit by Benton County, a Notice of Construction (air permit) from the Benton Clean Air Authority, and other state and local approvals.

### **I.C.2 NATIONAL ENVIRONMENTAL POLICY ACT REVIEW**

Interconnection of the PGF to the BPA transmission grid requires approval by the BPA. As a discretionary decision, BPA must be informed about the environmental consequences of interconnection. Environmental review under the National Environmental Policy Act (NEPA) is also required for the BPA to enter into an agreement for transmission of the power plant's electrical output via BPA's transmission grid to energy end users.

## **I.D SCOPE AND ORGANIZATION OF THE EIS**

This EIS evaluates the environmental effects of the proposed project and determines if any environmental impacts would result. The environmental evaluation includes the proposed power generation facility (including the power plant, gas pipeline, and water supply/wastewater pipeline), transmission interconnection, and access road. Alternatives

to the proposed action that are evaluated include two transmission interconnection alternatives, an access alternative, and the No Action Alternative (project not constructed or operated).

The Final EIS is divided into the following chapters:

- **Chapter I, Updated Summary and Project Description.** This chapter summarizes the EIS and includes a discussion of the Purpose and Need for the Proposed Action (NEPA requirement), a brief description of the Proposed Action and Alternatives, and a summary of the primary impacts and mitigation measures. It also includes a summary of the opportunities for public participation and consultation throughout the EIS preparation process.
- **Chapter II, Revisions to Draft EIS.** Rather than reprinting the entire Draft EIS, this Final EIS incorporates the Draft EIS by reference, and, in this chapter, identifies any changes and additions to the Draft EIS. Chapter II also includes errata to the DEIS, and other revisions to the Draft EIS made in response to comments on the Draft EIS.
- **Chapter III, Responses to Comments on the Draft EIS.** This chapter includes comment letters written in response to the Draft EIS, and responses to those comments.

## **I.E DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

### **I.E.1 PROPOSED ACTION (BPA'S PREFERRED ALTERNATIVE)**

#### **(a) Regional Setting**

The PGF would be constructed on a site near the rural community of Plymouth, which is located on the Columbia River in the southern portion of Benton County, Washington. The plant site is 2 miles west of Plymouth and approximately 22 miles south of Kennewick, which is part of the Tri-Cities (Richland, Kennewick, and Pasco) urban area of Washington. The city of Umatilla, Oregon, also on the Columbia River, is nearby. The project is in an agricultural/industrial area with neighbors that include the Williams Co. compressor station and the AgriNorthwest grain facility. The site is flat and had been in agricultural production but is now fallow.

#### **(b) Plymouth Generating Facility and Related Facilities**

The location of the PGF and related facilities is shown on (revised) Figure 2-3 following Chapter II of this Final EIS. The PGF and related facilities are described briefly in the following subsections. Chapter 2 in the Draft EIS describes the proposed project in more detail.

## **Generating Facility**

The generating facility would include equipment that can produce 307 nominal<sup>3</sup> MW of electricity. The facility would include a natural gas-fired combustion turbine generator and a steam turbine generator. Other major equipment would include a heat recovery steam generator (HRSG), condensing/cooling system, water treatment system, water storage tanks and a switchyard that would include transformers and switching equipment.

## **Transmission Interconnection**

The PGF would produce 307 MW of electrical energy at 500-kV. Plymouth Energy has requested interconnection of the PGF to BPA's proposed 500-kV McNary-John Day high-voltage electrical transmission line to be located within the existing BPA transmission line right-of-way corridor that runs from east to west approximately 0.6 mile north of the plant site. The BPA right-of-way corridor currently includes two lines, one operating at 230 kV (known as the McNary-Horse Heaven 230-kV transmission line) and the second at 345 kV (known as the Ross-McNary 345-kV transmission line). The 500-kV McNary-John Day transmission line would therefore be the third line in this corridor. BPA completed its NEPA process for this proposed line in November 2002, and is currently completing permitting activities for this line. As of May 2003, the construction start date for the McNary-John Day line had not yet been established. The proposed PGF interconnection would consist of a 0.6-mile 500-kV transmission line that would extend from the PGF north to an interconnection point on the 500-kV McNary-John Day transmission line. Four to six transmission towers would be installed to support the 0.6-mile line; these towers would be approximately 100 to 140 feet in height.

## **Gas Supply**

The PGF would be located adjacent to the Williams Co. compressor station, which is a point of intersection for several regional gas transmission pipelines. The PGF would be connected to the compressor station by an 800-foot pipeline that would supply natural gas fuel to the PGF.

## **Water Supply and Wastewater**

The PGF would require water for plant operations and cooling. The steam condensing and cooling system would be the predominant water user. To minimize water use, two parallel steam condensing systems would be used. The facility would rely on an air-cooled condenser (ACC), which has no water requirement, during periods when the outside air temperature is approximately 25 degrees Fahrenheit (F) or colder. During the warmest periods of the year, the facility would rely on a steam condenser/mechanical draft wet cooling tower (wet tower), which does require makeup water to replace evaporative losses and replace wastewater (blowdown) generated by the wet tower

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<sup>3</sup> The 307 MW size is approximate. Actual megawatt production would vary depending on weather conditions and other factors.

system. During much of the year, both systems would be in operation and balanced to minimize water use while maximizing cooling efficiency.

Maximum annual water use is projected to be 1,100 acre-feet per year (af/yr). Of this requirement, 960 af/yr would be supplied from a groundwater well whose rights have been purchased and transferred to Plymouth Energy. The remaining approximately 140 af/yr would be leased from the adjacent property owner and be supplied from existing wells. All wells that would supply water have existing water rights that have been recently reviewed and certified by the Benton County Water Conservancy Board and the Washington State Department of Ecology.

A maximum of 200 af/yr of wastewater would be generated by the PGF. This water would be supplied to the Plymouth Farm, the adjoining agricultural property, where it would be blended with existing water supplies and applied to agricultural crops as irrigation water. During the time of year when crop irrigation is not required, wastewater would be stored in a pond.

### ***Site Access for Construction and Operation***

Access to the plant site would be from State Route (SR) 14. The site access road would utilize a portion of the existing Plymouth Industrial Road that enters AgriNorthwest's grain facility (east of the plant site). A new road would be constructed from the plant site to intersect Plymouth Industrial Road. This access road would be used for both the construction and operation periods of the PGF. Heavy equipment components of the PGF would be delivered by rail to a rail siding located near the plant site and adjacent to Plymouth Industrial Road. A temporary offload platform would be constructed and heavy lift vehicles would be employed to move the heavy equipment components via Plymouth Industrial Road and the site access road to the plant site.

### **I.E.2 NO ACTION ALTERNATIVE**

The No Action Alternative would result in the PGF not being constructed or operated. The No Action Alternative would avoid site-specific impacts such as conversion of agricultural land to industrial use, impacts to transportation, impacts to visual resources, and impacts to ecological resources. Under the No Action Alternative, no air emissions would occur at this site. Also, direct and indirect employment and tax benefits would be forgone under the No Action Alternative.

The No Action Alternative would not reduce groundwater use because groundwater would continue to be used to support agricultural production. Under the No Action Alternative, no power would be produced; therefore, no contribution to regional power needs would be made.

### **I.E.3 ALTERNATIVES CONSIDERED**

The following alternatives to the proposed project were considered and have been evaluated in this EIS. The location of these alternatives is shown on (revised) Figure 2-3 following Chapter II of this Final EIS.

- **Alternate 230/345-kV Transmission Interconnection.** As an alternative to interconnection with BPA's proposed 500-kV transmission line, the PGF could interconnect with BPA's McNary-Horse Heaven 230-kV line or Ross-McNary 345-kV line, which are also located in the BPA right-of-way corridor approximately 0.6 mile north of the plant site. Interconnection to either line would be in accordance with the availability of transmission capacity as determined by the BPA.
- **Alternate Benton PUD/BPA Transmission Interconnection.** As an alternative to interconnection to BPA's 230/345-kV or 500-kV transmission lines, the PGF could interconnect indirectly to the BPA's McNary Substation via a tie-in to the existing McNary-Franklin 230-kV transmission line. This substation is located approximately 4.7 miles to the east of the plant site on the south side of the Columbia River, adjacent to the McNary Dam. To interconnect with the BPA system at this location, Plymouth Energy would rebuild an existing Benton Public Utility District (PUD) 115-kV transmission line, adding a 230-kV circuit to the line. East of I-82 and north of the Columbia River, the new 230-kV circuit would tie into the existing BPA McNary-Franklin 230-kV line that crosses the river on existing transmission towers and terminates at the McNary Substation. This would involve building a 2.0-acre switching station at the tie-in point. Under this alternative, the McNary-Franklin line could require reconductoring, and the river crossing structures could require reinforcement or upgrades for the larger conductor.
- **Access Alternative.** As an alternative to the proposed access road, construction traffic would be routed on SR 14 to the intersection with Christy Road, west of the plant site. Construction traffic would use Christy Road in a southbound and eastbound direction and then use a newly constructed road across adjacent property and the Plymouth Farm to the proposed plant site. The alternate construction access road would not cross the Burlington Northern Santa Fe (BNSF) railroad tracks. Following completion of plant construction, the construction access road across Plymouth Farm would be removed. An existing road on Plymouth Farm currently used for farm and Williams Co. access would be improved and used for permanent access during PGF operation.

Other alternatives were considered by the applicant but were rejected, including:

- **An Alternate Plant Location.** No other sites were identified by Plymouth Energy that were in such close proximity to gas supply and transmission infrastructure facilities and that had available water supply. Minimizing infrastructure interconnection length is desired by energy facility developers because it reduces the land area impacted, project costs, and permitting requirements.

- **Larger or Smaller Generation Facility Size.** The project size was selected to optimize project energy output and economic feasibility. A smaller power plant would be unlikely to offset project development costs. A larger project would require additional infrastructure capacity, especially available cooling water and transmission capacity.
- **Use of an Alternate Generation Configuration or Technology.** Other generation technologies considered were coal (increased infrastructure for coal handling and emissions controls), wind (site is less suitable than other locations for wind turbines), and solar (increased capital investment per kilowatt [kW] of generation capacity and lower average capacity factor affects cost-effectiveness in merchant energy market). Co-generation was reviewed, but no industrial processes that require thermal energy and have operating requirements compatible with the generation facility are located nearby. The PGF, as configured, would be able to provide thermal energy to facilities that may choose to locate in the vicinity in the future. Simple cycle technology (natural gas fired combustion turbine-generator without a steam cycle) was evaluated and rejected because such configurations are less efficient.
- **Use of an Alternate Cooling System Technology.** The proposed PGF cooling system is a combined system that uses both mechanical wet tower and air-cooled condenser technology. Alternative technologies for power plant cooling include once-through cooling using cooling water from the Columbia River; dry cooling (air-cooled condenser) that uses no water; or mechanical draft wet cooling towers. Once through cooling was rejected because of the restrictions on the use of surface water for power plant cooling found in the revised National Pollutant Elimination Discharge System regulations and the difficulty of obtaining water rights for new surface water withdrawals. Dry cooling was rejected due to the expense of the system and the high impact on power production. Mechanical draft wet cooling was rejected due to the larger water requirement.
- **Use of an Alternate Water Supply.** Alternative water supplies evaluated included surface water (Columbia River), groundwater, local water district supplies, and local wastewater treatment plant effluent (gray water). The water right, purchased from Plymouth Farm by Plymouth Energy, includes a point of withdrawal from the Columbia River that could provide surface water for plant operations. However, the intake structure and supply pipeline for this point of withdrawal is owned and operated by an independent third party. To ensure plant operating reliability, reliance on independent third parties was avoided and the surface water point of withdrawal for this water right was relinquished in favor of a groundwater point of withdrawal within the proposed plant site. Obtaining approval for a separate point of surface water withdrawal, owned and operated by Plymouth Energy for sole use of the power plant, was not considered feasible. The plant site is not located within a local water service district,



and extension of service from the Plymouth Water District was not considered feasible. No wastewater treatment plant effluent is available in the nearby project vicinity.

- **Alternate Wastewater Disposal Methods.** Wastewater disposal alternatives examined include disposal to a local publicly owned treatment works (POTW), groundwater injection, discharge to a surface water body, installation of a zero discharge system, and agricultural irrigation. A POTW is not located in the area, so this alternative was rejected. Discharge to a surface water body or an injection well would require extensive permitting, and in the case of injection wells, is not encouraged by state policy. A zero discharge system (recirculation and treatment of wastewater) increases plant operating requirements and produces a solid waste for disposal. This system was rejected in favor of discharge of wastewater for agricultural use, which allows for increased plant operating efficiency and reuse of wastewater for irrigation.

## **I.F SUMMARY OF PUBLIC INVOLVEMENT, CONSULTATION, AND COORDINATION**

Both SEPA and NEPA require opportunities for public input and consultation during the preparation of an EIS. Consistent with these requirements, Benton County and the BPA have held three public meetings and requested public input on the scope of the EIS and public comment on the Draft EIS.

The following summarizes the activities that have been conducted:

- **Initial Public Notice.** On December 21, 2001, Benton County received an Application for Conditional Use Permit and SEPA Checklist from Plymouth Energy for the PGF project. Benton County reviewed the application and issued a Notice of Application, Determination of Significance, and request for comments on the scope of an EIS on January 12, 2002. This public notice initiated a 30-day comment period during which the public and representatives of public agencies were asked to comment on the project and suggest issues that should be evaluated in the EIS. This initial public notice also announced a public meeting to be held in the community of Plymouth near the proposed plant site to discuss the project and obtain additional public input with regard to the scope of the EIS.
- **First Public Meeting.** On January 24, 2002, Benton County hosted an evening scoping meeting at the Plymouth Fire Station. The meeting included presentations by (1) Benton County, explaining the process that will be followed for preparation of the EIS, (2) BPA on its role, and (3) Plymouth Energy on the project itself. Members of the public asked questions and were given the opportunity to provide written comments.

- **Mailing List.** Benton County and BPA have developed and are maintaining a mailing list of interested parties. All public notices and announcements concerning the project are mailed to all parties on the mailing list.
- **Completion of the EIS Scoping Report.** Following closure of the initial public comment period (February 12, 2002), Benton County and BPA jointly reviewed all of the comments received from members of the public and relevant public agencies and developed the scope of issues to be evaluated in the EIS. An EIS Scoping Report was prepared by the County in consultation with BPA.
- **Second Public Meeting.** On April 9, 2002, the BPA hosted a evening open house meeting at the Paterson School in Paterson, Washington, a community approximately 10 miles to the west of the proposed project site. At this meeting, the BPA and representatives of Plymouth Energy discussed the PGF in an open house format. Displays with project information were available, and BPA and PGF representatives answered questions posed by attending members of the public.
- **Draft EIS.** The Draft EIS was published in August 2002, and was available for public comment through October 15, 2002.
- **Third Public Meeting.** On September 26, 2002, Benton County and BPA hosted an evening open house meeting at the Plymouth Fire Station, in order to answer questions on the Draft EIS and collect public comments on the Draft EIS.

Comments on the Draft EIS submitted during the comment period were considered in preparation of the Final EIS. The FEIS lists a response for each comment (see Chapter III of this FEIS), and amends the Draft EIS text where necessary (see Chapter II of this FEIS).

## **I.G SUMMARY OF POTENTIAL PROJECT IMPACTS AND MITIGATION MEASURES**

A summary of the potential impacts, design measures, and mitigation measures to be implemented by the project is presented in Table 1-1 in the Draft EIS. The table is organized by the various elements of the environment. For each element, the existing conditions, impacts, and impacts of the alternatives are summarized. Specific design measures that would reduce or eliminate impacts to which Plymouth Energy has committed are also listed. With the exception of a potentially significant noise impact, no significant impacts were identified. Mitigation has been identified to reduce or eliminate this potentially significant noise impact.

## **I.H CUMULATIVE IMPACTS**

Construction and operation of the PGF is expected to have limited environmental impacts, primarily on the plant site and the immediate area. Only one of these impacts, noise, could potentially be significant. In addition to the direct impacts caused by the PGF, cumulative impacts that could arise from the effect of a number of projects being constructed and operated in the regional area of the proposed project have been evaluated. For land use, transportation, and other site-related cumulative impacts, this evaluation includes projects within 30 miles of the PGF plant site. The cumulative regional haze evaluation includes projects as far away as 230 miles from the plant site. In addition, the potential of the PGF to contribute to global warming from greenhouse gas emissions is discussed.

### **I.H.1 REGIONAL TRENDS**

The PGF plant site is located in a predominantly agricultural area of Benton County. Because it is adjacent to river, rail, and highway transportation and has both electrical and gas pipeline infrastructure located nearby, a trend toward industrial development has occurred and is expected to continue. In addition, the proximity of natural gas pipelines and high voltage transmission lines along both sides of the Columbia River from McNary Dam down to The Dalles has supported the development of natural gas-fired power plants in the region. The lack of urbanization, except in small communities, reduces the potential for conflict between urban and industrial development.

The trend toward additional industrial development is not likely to change the general land use pattern in the region, which is dominated by agriculture and undeveloped land.

Further development of industrial activity in the region, especially industries such as power generation that produce air emissions, may potentially impact air quality. Future industrial development may also be limited by the availability and ability to transfer water rights to industrial uses.

#### **Local and Regional Cumulative Impacts**

The cumulative analysis of impacts was performed by identifying projects whose impacts could overlap and thus add cumulatively to the impacts of the PGF. Seventeen projects in the Plymouth/Umatilla/Hermiston area were identified for cumulative impact analysis, including power plants, transmission lines, wind farms, an industrial facility, and a recreation facility. Several of these evaluated projects were found to have potential air quality, transportation, energy and natural resource, and socioeconomic cumulative impacts. No potential cumulative impacts were expected to occur to earth, water, biological resources, environmental health, noise, land use, visual resources, or cultural resources.

Results of cumulative impact evaluations are listed below:

- **Air Quality.** The region in which the proposed project is located includes eight other potential significant air emission sources, all of which are power plants. Four of these power plants are currently operating, and the remaining are approved for construction or seeking licensing. Both cumulative air quality and regional haze evaluations found that the PGF would not significantly contribute to air quality impacts. In particular, the regional haze evaluation examined impacts on Class 1 air quality areas and the Columbia Gorge National Recreation Area and included power plants well beyond the immediate project vicinity. See Sections 3.2 and 3.14 in the Draft EIS for additional discussion on air quality cumulative impacts. Also, see Chapter II of this FEIS for revisions to Section 3.2 of the Draft EIS, Air Quality, and Appendix B2, Contributions to Regional Haze.
- **Transportation.** The region in which the proposed project is located is not becoming urbanized and, therefore, increased traffic congestion on the regional highway system is not expected. Because power plants generate a very small volume of traffic during their operational phase, the cumulative impact analysis focused on the construction phase, which would be associated with relatively higher traffic volumes. Projects that could be constructed during the same time period as the PGF were identified, and the combined traffic impacts were evaluated. Several other projects in the region could be constructed at the same time as the PGF; therefore, significant cumulative impacts could occur. However, the PGF would be a very small portion of the total cumulative impact resulting from this group of projects. See Sections 3.11 and 3.14 in the Draft EIS for more detailed discussion on transportation cumulative impacts.
- **Energy and Natural Resources.** All projects in the vicinity of the PGF will burn natural gas as a primary fuel during the period the PGF is expected to operate. An evaluation of the total demand for fuel for all projects operating simultaneously found that the PGF would not significantly impact the region or the nation's supply of natural gas resources. See Sections 3.5 and 3.14 in the Draft EIS for more detailed discussions of energy and natural resources cumulative impacts.
- **Socioeconomics.** Because power plants have relatively small operating employment and produce tax revenues during operation, socioeconomic impacts would primarily be related to the project's construction phase. Projects that would be constructed during the same or a similar time period as the PGF were evaluated for potential socioeconomic impacts. The review found that impacts to labor force and requirements for local services could be cumulatively significant but would be due primarily to projects other than the PGF that are planned or under construction in the

region. See Sections 3.13 and 3.14 in the Draft EIS for more detailed discussions on cumulative socioeconomic impacts.

- **Public Services and Utilities** – Impacts from the PGF would be not significant; however, a potentially significant cumulative impact on public services and utilities could occur because additional daily or weekly population in the region (construction workers on other projects) would place a higher demand on services such as law enforcement, fire protection, and emergency services. See Sections 3.12 and 3.14 in the Draft EIS for more discussion on cumulative impacts to public services and utilities.

### **Greenhouse Gas and Global Warming**

In addition to the local and regional cumulative impacts discussed above, fossil-fuel power plants, including natural gas-fired combustion turbine projects such as the PGF, emit air pollutants that are of concern for their potential contribution to global warming. Power plant emissions of carbon dioxide (CO<sub>2</sub>) are thought to increase the ability of the earth's atmosphere to trap heat and increase global temperatures. This phenomenon is considered to be of global concern and is not necessarily a local or regional cumulative impact. At its maximum emissions potential, the PGF would generate annual CO<sub>2</sub> emissions that are approximately 0.015 percent of the total of all CO<sub>2</sub> emissions in the U.S. Actual plant CO<sub>2</sub> emissions would be less. The effect of this small contribution to global warming is not known.

### **References**

BPA 2002. Email communication between Phil Smith, Bonneville Power Administration, and Katie Carroz, URS Corporation. December 31, 2002.

Western Electricity Coordinating Council (WECC). 2002. 10-Year Coordinated Plan Summary, 2002-2011: Planning and Operation for Electric System Reliability. Salt Lake City, Utah. September.